

Rules for “PercentBoard” v1.0

The Game, in a Nutshell: Roll the dice, and move around the board, using your knowledge of percentages to maximize your score.

Number of Players: Technically 1+, but the game is much more interesting with 2+. The more, the merrier! Ten, however, might be pushing it ;-).

Materials: Paper, pencil(s), 2 six-sided dice, calculator (optional)

Game Setup

Before you play, someone should draw up a *game board* on paper. An example of a game board:

A hand-drawn game board grid. The grid has 10 columns and 10 rows. Column 1 contains symbols: R, Δ15%, 20, 125%, ▽40%, ▽5%, Δ20%, 85%, 6, and 100%. Column 2 contains int, Δ10%, and a black dot. Column 3 contains 15, ▽40%, and 25. Column 4 contains 115%, Δ30%, and Δ30%. Column 5 contains 90% and a black dot. Column 6 contains ▽30% and a question mark. Column 7 contains 75% and an upward arrow. Column 8 contains ▽10% and a downward arrow. Column 9 contains 10 and 130%. Column 10 contains Δ40%, ▽40%, Δ50%, ▽33%, 5, and a question mark. Arrows indicate movement paths: a double-headed horizontal arrow between columns 4 and 5; a vertical arrow pointing down from the top row to the bottom row; a vertical arrow pointing up from the bottom row to the top row; and a diagonal arrow pointing up and to the right from the bottom-left corner to the top-right corner.

R	int	15	115%	Δ30%	90%	▽30%	75%		
Δ15%							▽10%		
20							10		
125%							130%		
▽40%							△40%		
▽5%							▽40%		
△20%							△50%		
85%							▽33%		
6							5		
100%	△10%	▽40%	25	△30%	●	105%	?		

Elements of the Game Board



This is the *start square*. All players start here. If a player lands on this square, nothing happens.



This is a *number square*. If a player lands on a number square, he will receive the number of points on that square. For example, if Andrew had 30 points, and landed on the number square with “5” on it, his new score would be 35.

Note to board designers: Don't use negative numbers on your number squares. It should be impossible for any player to end up with a negative score.

80%

This is a *percent square*. If a player lands on a percent square, her score will become $X\%$ of what it was before, where X is the number on that square. For example, if Beth had 70 points, and landed on the percent square with “80%” on it, her new score would be 56.

△30%

This is a *percent increase square*. If a player lands on a percent increase square, his score will be increased by $X\%$, where X is the number on that square. For example, if Carl had 50 points, and landed on the percent increase square with “▲ 30%” on it, his new score would be 65.

▼50%

This is a *percent decrease square*. If a player lands on a percent decrease square, her score will be decreased by $X\%$, where X is the number on that square. For example, if Danielle had 60 points, and landed on the percent decrease square with “▼ 50%” on it, her new score would be 30.

Note to board designers: Don't use numbers greater than 100 on your percent decrease squares. It should be impossible for any player to end up with a negative score.

?

This is a *pick square*. If a player lands on a pick square, he gets to move to ANY square on the board that is not a pick square. The square that he picks is called his *destination square*. After he moves to his destination square, he acts as if he has landed on that square.

Note: A player can pick the board's start square as his destination square. He can also pick a destination square that other players currently occupy.

R

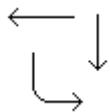
This is a *reset square*. If a player lands on a reset square, her score gets reset to 100.

Hint: Reset squares are bad, if your score is greater than 100. They do nothing, if your score is exactly 100. They are GOOD, if your score is less than 100!

int

This is an *int square*. If a player lands on an int square, his score will become the largest integer that is less than or equal to what it was before. In other words, his score will become the *floor* of what it was before. For example:

x	$\text{floor}(x)$
5.38	5
5	5
0.4	0
0	0



Arrows indicate which way players move around the board.

Gameplay

Once the players have assembled, they should set the game's *parameters* before starting a new game. First, they should decide how many *turns* they will play. You can call this number N . A turn is completed when every player has completed one move. Then, they should decide how many decimal places scores will be allowed to contain. You can call this number D . If D is 0, then scores will be rounded to the nearest integer after each step in their calculation. For example:

Score	Rounded to the Nearest Integer
37.6	38
35.5	36
32.49	32
30.1	30

If you detest decimals, use a D of 0. If D is 1, round scores to the nearest tenth. If D is 2, round scores to the nearest hundredth. To see whether you should round up or down, check the value of the digit $D + 1$ places after the decimal point. If that digit is 5 or more, round up. If that digit is 4 or less, round down. I recommend a D of 2 or 3.

After the players have agreed on a set of parameters, they should somehow decide the order in which they will make their moves. Then, each player should make his or her *mark* (in LIGHT pencil!) near the start square of the board (the one with a dot in it). A player's mark can be her player number (example: 2, for the player who goes second), the first letter of her name (example: E, if her name is Edith), or any other symbol that is appropriate, and that won't get confused with another player's mark. Finally, make a table of some sort for keeping track of everyone's scores. Each player starts with a score of 100.

How each player makes his or her move:

- Roll the two dice.
- Move your mark by one of the following numbers of spaces in the direction indicated by the arrows on the board:
 - The number on one of the dice.
 - The number on the other die.
 - The sum of the numbers on the two dice.
 - For example, if you roll a 3 and a 5, you can move 3, 5, or 8 spaces.
 - Note: If you roll two of the same number, you have fewer move choices.
 - Note: To move, erase your mark, and then rewrite it near the square on which you landed (In LIGHT pencil! Please! To avoid causing damage to the paper by the repeated writing and erasure of marks.) Alternatively, you can use game pieces as your marks, in lieu of pencil marks.
- Once you land on a square, perform the action(s) indicated by the symbol(s) on that square (see the section on **Elements of the Game Board** above).
 - After this step, and before the next step, round your score to D decimal places! (For the meaning of D and instructions on how to do this, see the first and second paragraphs of the section on **Gameplay** above.)

- If you have just landed on a square that is already occupied by one or more players, you get to join them on that square. Then, the fun part happens!
 - Every player now on that square receives a score that is equal to the *average* of their current scores.
 - To compute the average of a set of scores, add them up, and then divide that sum by the number of scores in the set. For example, if D is 2:

Set of Scores	Average
80, 90	85
20, 41, 57	39.33

- After this step, round the scores of EVERYONE on that square to D decimal places!

The players always move in the order they decided at the beginning of the game. When every player has made one move, one turn has been completed. Once N turns have been completed (For the meaning of N , see the first paragraph of the section on **Gameplay** above.), the game is over. Whoever has the highest score now is the winner, whoever has the second-highest score gets second place, whoever has the third-highest score gets third place, etc. If two or more players have the same score, see the following examples of how ranks are assigned:

	Player 1	Player 2	Player 3	Player 4
Score	75	120	120	60
Rank	3rd	1st	1st	4th

	Player 1	Player 2	Player 3	Player 4	Player 5
Score	60	87	85	45	60
Rank	3rd	1st	2nd	5th	3rd

Alternative Play Suggestion: Have players compete to end up with the LOWEST score, rather than the highest one! In other games, this is called “misère” (pronounced “mih-ZAIR”).